Cyclic Changes in Lipoproprotein and Apolipoprotein Levels During the Menstrual Cycle in Healthy Premenopausal Women on a Controlled Diet

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Journal: (J *Olin Endocrinol Metab 81*: 3599-3603, 1996)

Abstract: Lipoprotein, apolipoprotein (apo), and hormone levels were measured in 12 healthy women over three consecutive menstrual cycles; one free-living and two under controlled dietary conditions. Serum hormone levels were measured to identify menstrual cycle phases (menses, early follicular, late follicular, and midluteal). After stabilization for one cycle on the controlled diet, ANOVA modeling of the second controlled-diet cycle revealed that low-density lipoprotein (LDL) cholesterol levels in the midluteal phase were significantly lower (by 7%) than in the early follicular phase. High-density lipoprotein (HDL) cholesterol levels during the late follicular phase were higher (by 6%) than menses levels. Differences in the HDL-cholesterol and apoA-I fluctuations resulted in a higher proportion of HDL-cholesterol to apoA-I during the late follicular phase than that during the menses phase. The ratios of LDL cholesterol/HDL cholesterol and apoB/apoA-I in be early follicular phase were greater by 5.6% and 6.0*, respectively, than those in the midluteal phase. Fluctuations in total cholesterol, triglyceride, apoA-I, and apoB did not reach significance. Thus, the cyclic fluctuations of LDL and HDL cholesterol need to he considered in the screening and medical monitoring of women with borderline lipoprotein levels, as well as in the design and the interpretation of results of studies involving premenopausal women (J *Olin Endocrinol Metab 81*: 3599-3603, 1996)